HOW TO USE YOUR LERVAD BENCH

LERVAD

Notes for Students

This manual has been produced in order to help you use the Lervad bench to the best advantage.

The bench has been carefully designed to provide the best possible grips for holding workpieces in every conceivable situation. On this bench there are three different types of vice or hold. This is so that whatever work is being done it can be held at the bench securely, safely, and always in a position where it can be approached from a comfortable, efficient and natural working angle.

Having a top quality Lervad bench however is like having an expensive camera or a fast car—you can't get the best out of it unless you know what all the parts do. This guide will show you how to use the different work holding facilities of the Lervad bench to the best advantage.

It is easy to follow. There are 16 pages of drawings arranged in the sequence of the basic woodworking operations—sawing, planing, etc. Simply turn to the one which refers to the operation you plan to do next. To make it easier to refer to while working the manual stands up so that you can consult it on the bench beside you, and the pages flip over like a calendar.

If you use it carefully it will help you to do better woodwork.

LERVAD

Notes for Teachers

This manual is to assist students using Lervad individual benches No 610, 610L and 611, and group benches Nos 620, 620L, 621 and 621L. In part only it is applicable to Lervad benches No 630 and 631.

Extra copies are available from the company at a small charge.

The manual is not intended to teach basic woodwork but simply to show the most efficient way of using the work holding facilities of the Lervad bench which are different from and more comprehensive than those encountered on most school woodwork benches.

Use of the recommended positioning will not only improve performance but cut down the possibility of damage to benches through inadvertent saw cuts, etc. Notes on the care and maintenance of these benches appear on the inside bach cover.

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TELEGRAMS: LERVAD WOOD, VEJEN

LEICHTUNG, Inc.
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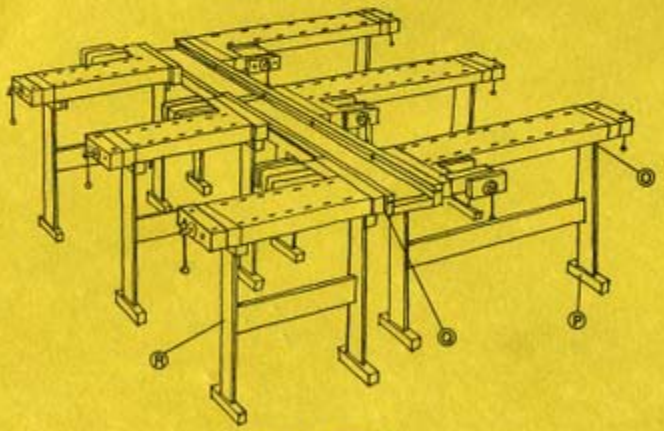
Bench dogs
A. Bench dog
B. Bench dog slot

Shoulder vice
C. Vice bar with glued knobs
D. Vice block
E. Back piece
F. Spindle, supplied with locking plate attached
G. Vice jaw
H. Vice bolt
I. Vice rods

Tail vice
J. Vice bar with glued knobs
K. Spindle with locking plate attached
L. Fixed tail vice block
M. Moving tail vice block
N. Vice rods



Bench Assembly
O. Underframes to bench tops
P. Underframes to floor
Q. Bench tops to assembly wells
R. Legs to cross-rails

CARE AND MAINTENANCE

Notes for teachers

Lervad bench tops are made from Danish beech, kiln-dried to 5 or 6% moisture content, submerged into raw linseed oil and lacquered twice on top and underneath. This treatment prevents shrinkage and warping under all normal conditions. Nevertheless timber remains a live material and some movement must be expected. The following procedures will help keep the benches in first class condition.

No particular time schedule for maintenance is suggested as conditions vary from workshop to workshop but a regular programme at fixed periods to suit local conditions is recommended.

Tightening

The following points should be checked regularly to see if tightening is necessary.
Shoulder vice bolt (H)
Shoulder vice rods (I)
Fixed tail vice block (L)
Tail vice rods (N)
Group benches to assembly wells (Q)
Underframes to bench tops (O)
Underframes to floor (P)
Underframe legs to centre rail (R)

Lubrication

All moving vice parts are made of steel and should be lubricated with a neutral, viscous oil. The following should be oiled at regular intervals.
Shoulder vice rods (I)
Shoulder vice spindle and nut in shoulder block (D)
Shoulder vice spindle and locking plate (F)
Tail vice rods (N)
Tail vice spindle and nut in fixed tail vice block (L)
Tail vice spindle and locking plate (K)

Special care should be taken in looking after the spindles and locking plates which should be well oiled at all times to avoid premature wear.

Maintenance of bench tops

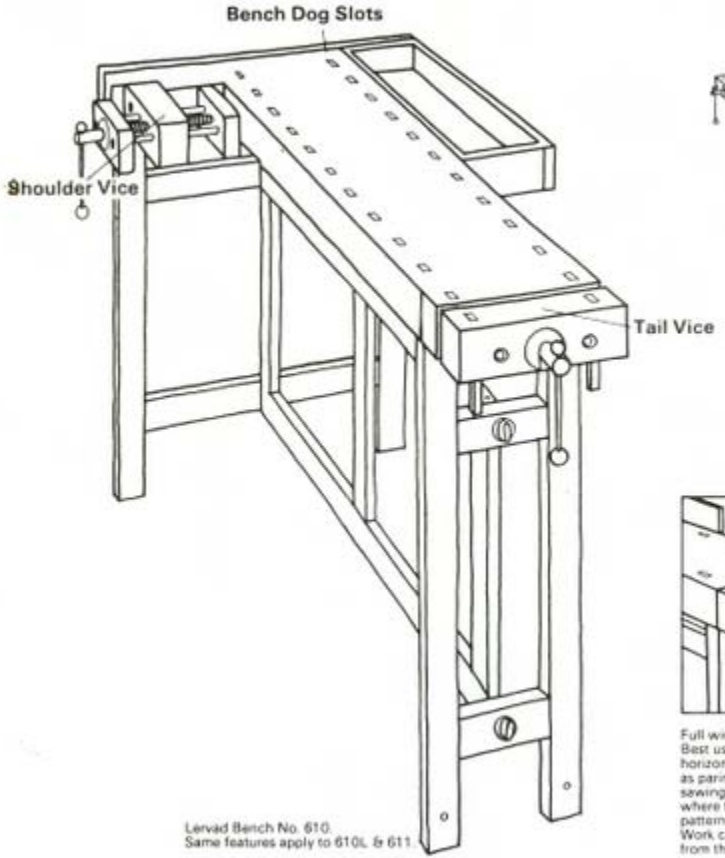
The smart appearance of Lervad benches on delivery has been found to be a stimulus to students. There is no reason why this appearance should not be maintained.

In general the more raw (not boiled) linseed oil the bench tops absorb without becoming greasy the better they will be protected against changes in humidity. What is generally known as Teak Oil is useful, but a cheaper mixture can be made of equal parts of *natural* turpentine and *raw* linseed oil.

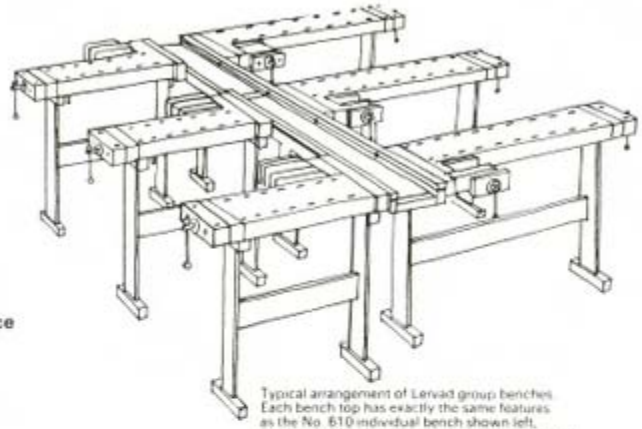
A light sanding of the top at regular intervals followed by an application of this mixture will soon restore the tops. A hand scraper will remove light markings and indents, but planing is not advisable. Wire wool can be used for a final finish after scraping.

Cleaning in more depth may be done using a belt sander, but should only be undertaken by a skilled person who can ensure that the bench tops remain flat. As little wood as possible should be removed. If more than about 2 mm is removed, the recesses of all the bench dog slots will need deepening, allowing the bench dogs to stay under the bench surface level when not in use.

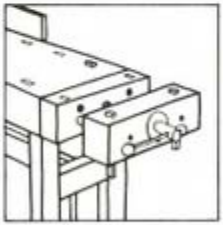
Parts of the Lervad Bench



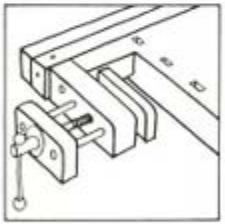
Lervad Bench No. 610.
Same features apply to 610L & 611.



Typical arrangement of Lervad group benches. Each bench top has exactly the same features as the No. 610 individual bench shown left, except that they have a common central tool well.



Full width tail vice.
Best used for holding timber horizontally for such processes as paring, mortising, tenon sawing and other situations where the conventional English pattern vice would be used. Work can be approached easily from three sides.

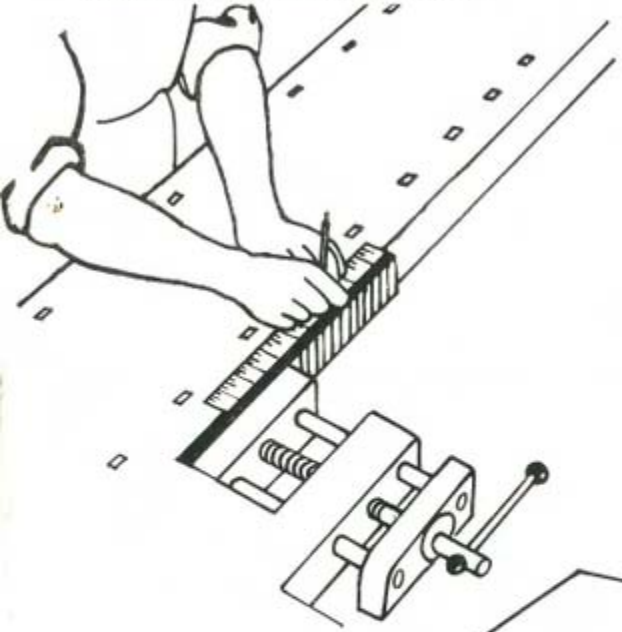


Shoulder vice.
Has its jaw space unimpeded by spindles so that even the largest timbers can be held vertically. Delicate pieces are gripped as perfectly as large ones and the wood is supported on three sides. Generally used for operations where the wood is held vertically (e.g. dovetail cutting, end grain planing, carving etc.).

Double row of bench dog slots.
A feature exclusive to Lervad. Working in conjunction with the full width tail vice the dogs provide a four-point hold perfect for surface operations, such as face planing, drilling, rebating, fret and coping sawing etc. Also as cramps for setting up and gluing and for sawing large boards. Easily accessible from three sides making frequent re-positioning of work unnecessary.

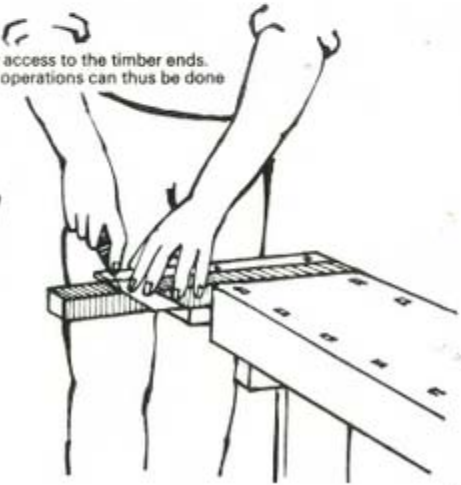
MARKING OUT

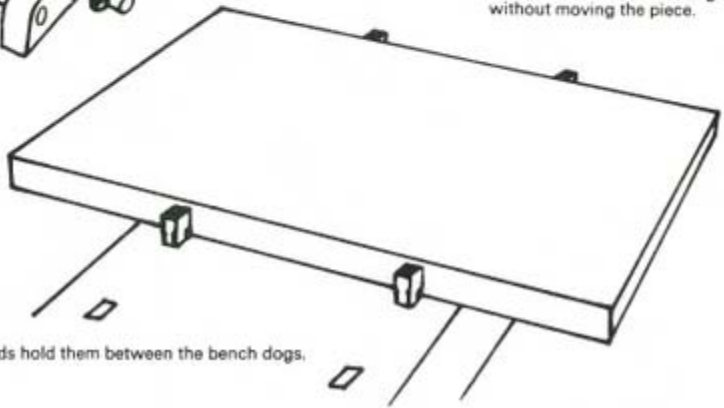
It helps accuracy to hold wood steady for measuring. The shoulder vice is most convenient for many pieces and can be reached comfortably from either side of the bench.



When scribing with a marking gauge the tail vice provides the best grip and leaves the surface of the wood unimpeded.

Using the tail vice gives clear access to the timber ends. Several consecutive marking operations can thus be done without moving the piece.

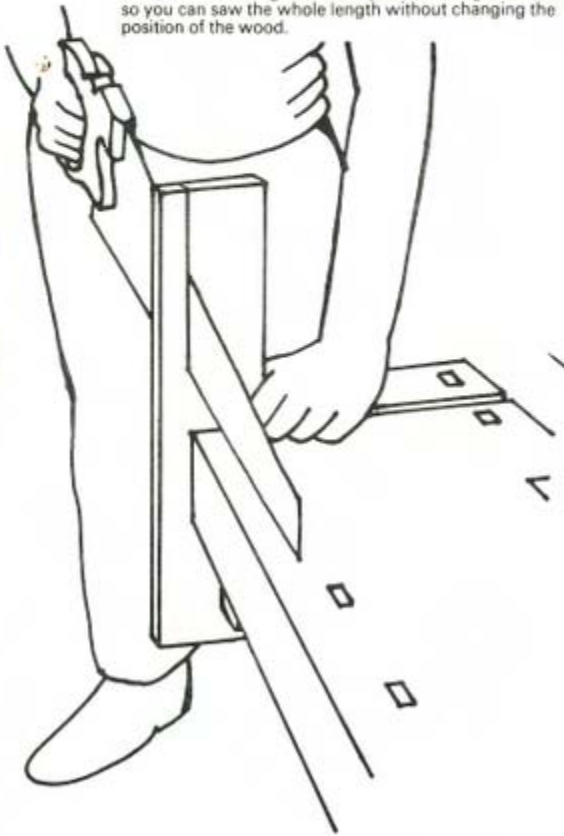


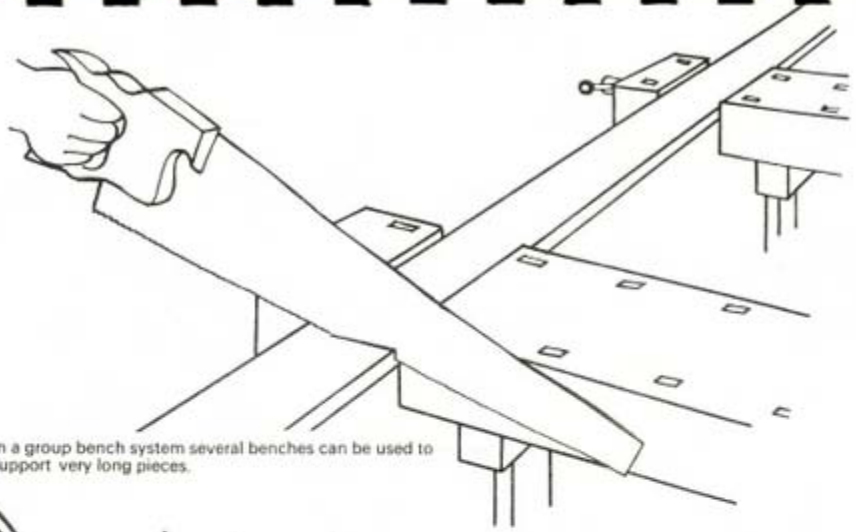


To mark out wider boards hold them between the bench dogs.

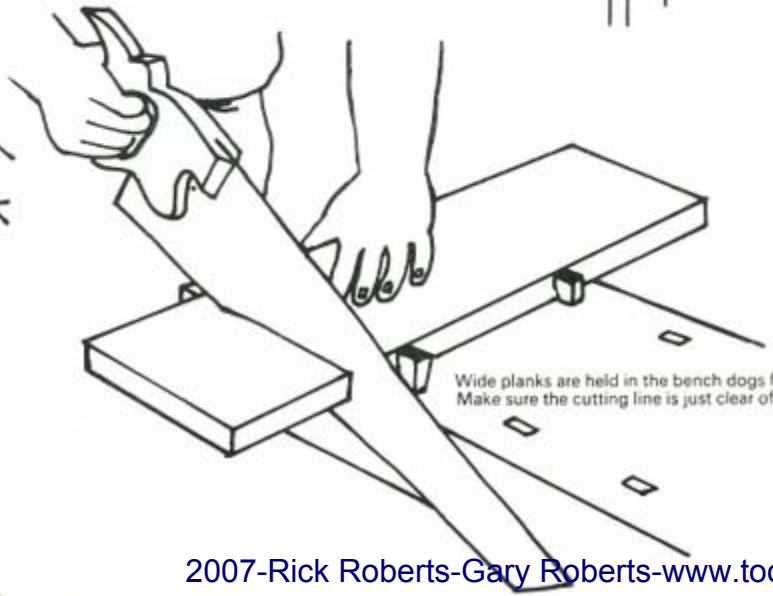
SAWING 1.
Rip & Crosscut

Sawing down the length of timbers can best be done in the tail vice. The cutting line is away from the edge of the bench so you can saw the whole length without changing the position of the wood.





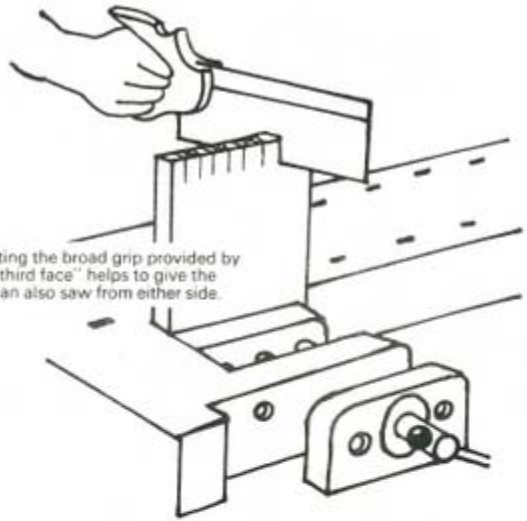
In a group bench system several benches can be used to support very long pieces.



Wide planks are held in the bench dogs for cross cutting. Make sure the cutting line is just clear of the bench edge.

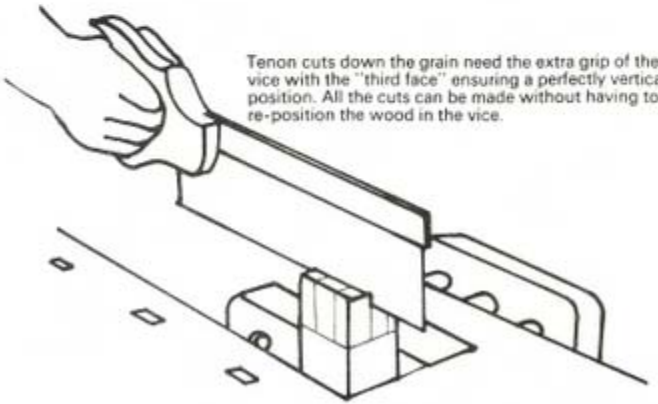
SAWING 2.
Backsaws

Either vice can be used to clamp a standard bench hook, but the tail vice gives you the long edge of the bench top to help guide your eye, and you will be sawing outside not on top of it (nor into it).



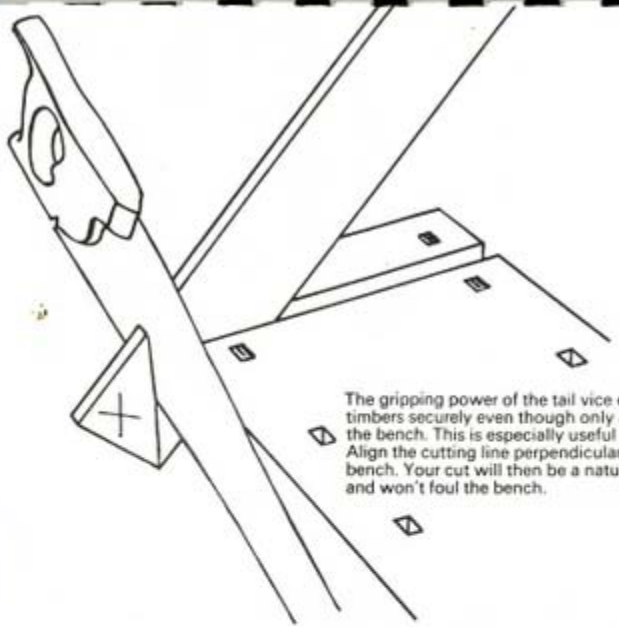
For comb joints or dovetail cutting the broad grip provided by the shoulder vice is best. The "third face" helps to give the board perfect alignment. You can also saw from either side.

Smaller timbers can be sawn to length in the tail vice. Level your wood with the edge of the fixed jaw so that you know it is horizontal, and saw outside the bench edge.



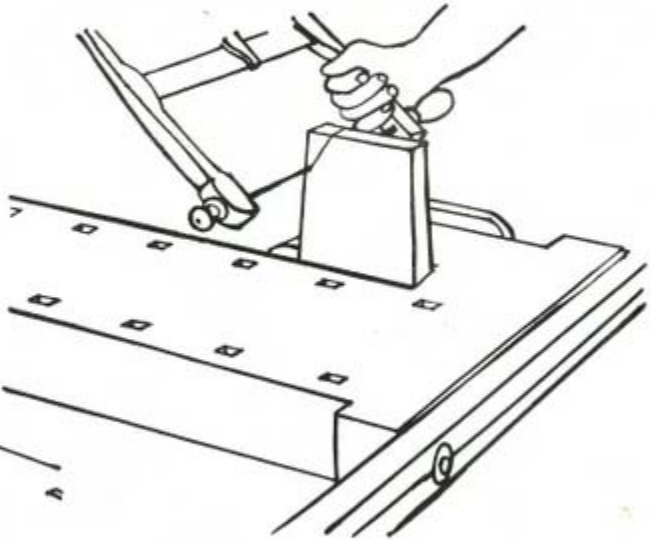
Tenon cuts down the grain need the extra grip of the shoulder vice with the "third face" ensuring a perfectly vertical position. All the cuts can be made without having to re-position the wood in the vice.

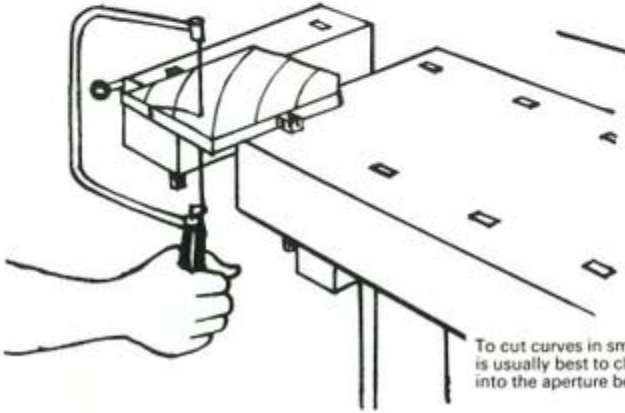
SAWING 3. Irregular cuts & curves



The gripping power of the tail vice enables you to hold long timbers securely even though only a small part is actually in the bench. This is especially useful for oblique cuts like this. Align the cutting line perpendicular with the side of the bench. Your cut will then be a natural and more accurate one and won't foul the bench.

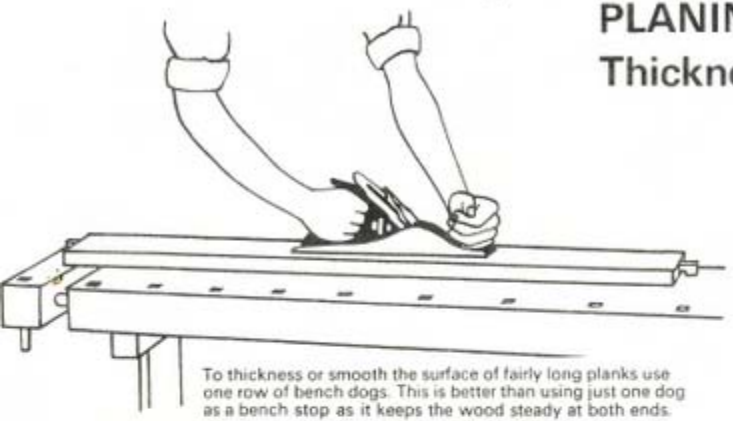
Because the shoulder vice jaws have no spindle in the way a really secure grip is afforded to upright timbers. Cutting them with a bow saw like this is easier in this vice.





To cut curves in small pieces with a coping saw or fretsaw it is usually best to clamp in the bench dogs. You can then saw into the aperture between the tail vice and bench end.

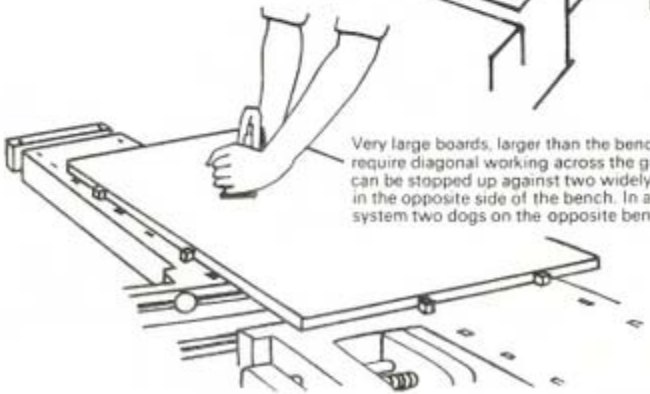
PLANING 1.
Thicknessing & Smoothing



To thickness or smooth the surface of fairly long planks use one row of bench dogs. This is better than using just one dog as a bench stop as it keeps the wood steady at both ends.

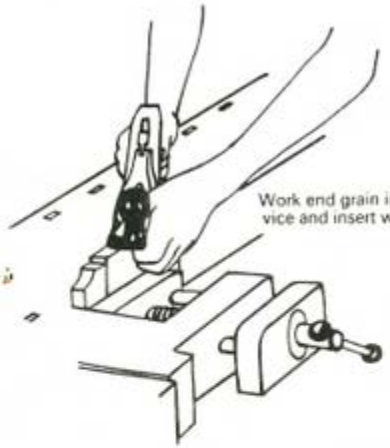
Quick stock removal of shortish timbers, rather than for squaring off, is best undertaken in the firmer grip of the shoulder vice.

For edge planing all but the shortest timbers the bench dogs are again the best hold. The best position when squaring. Very small pieces in the shoulder vice.



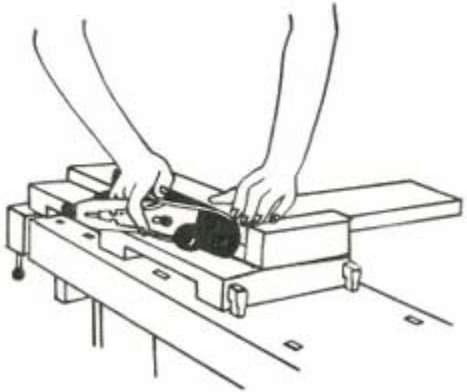
Very large boards, larger than the bench surface, sometimes require diagonal working across the grain. For this one edge can be stopped up against two widely spaced bench dogs in the opposite side of the bench. In a group bench system two dogs on the opposite bench can also be employed.

PLANING 2.
End Grain

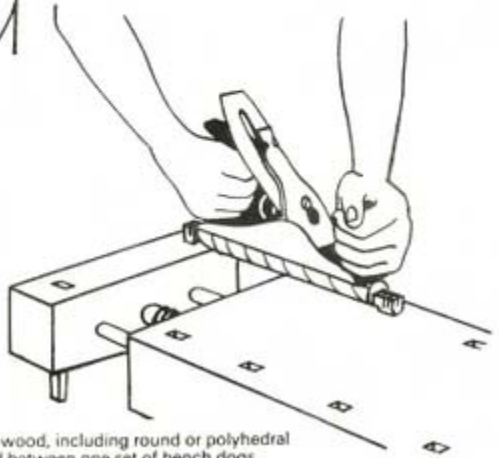


Work end grain in the shoulder vice. Keep the work low in the vice and insert waste wood to protect ends from splitting.

Large pieces of plywood or blockboard are held firmly in the shoulder vice for edge trimming. They are not only gripped firmly but the third face provides a stop.



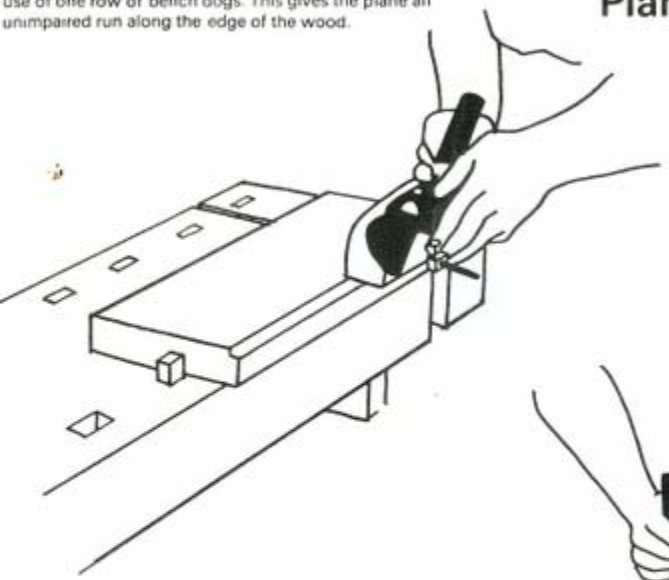
When trimming wood on a shooting board the board can be held between the double row of bench dogs and worked from the end of the bench.

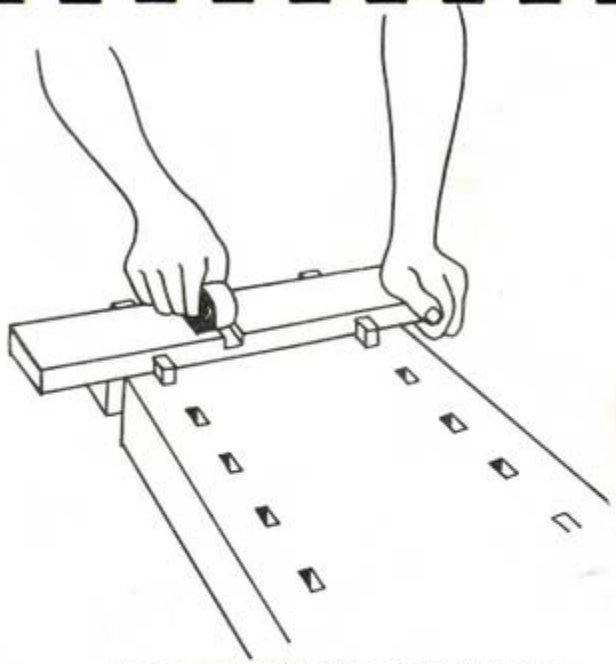


Very small sections of wood, including round or polyhedral shapes can be gripped between one set of bench dogs.

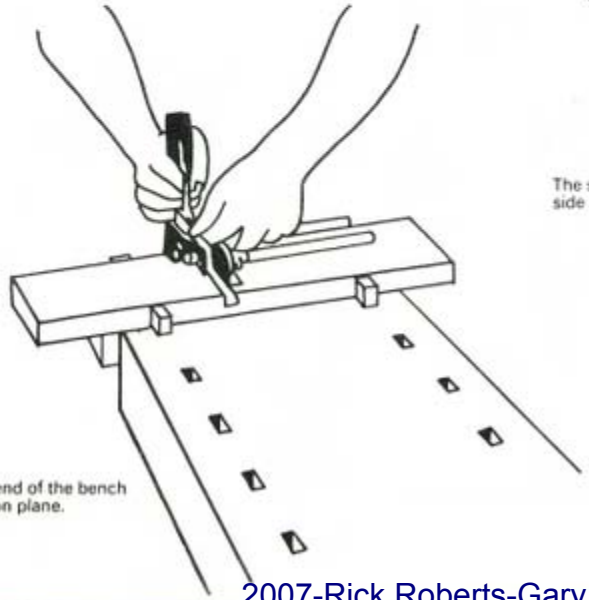
PLANING 3.
Rebate & Plough Planes

Rebating and plough planing the edge of wood requires the use of one row of bench dogs. This gives the plane an unimpaired run along the edge of the wood.



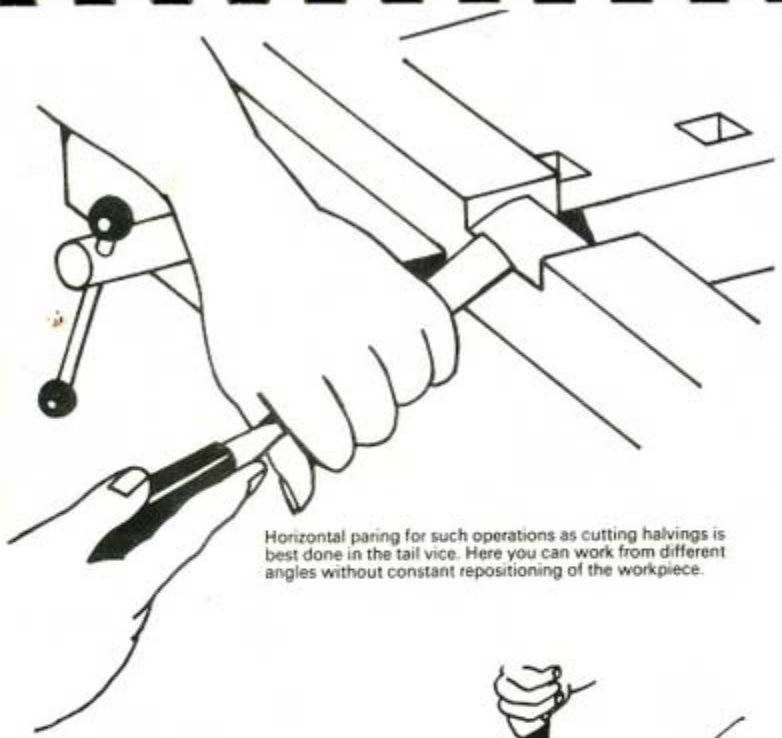


The same piece is equally well secured for trimming with a side rebate plane or router.

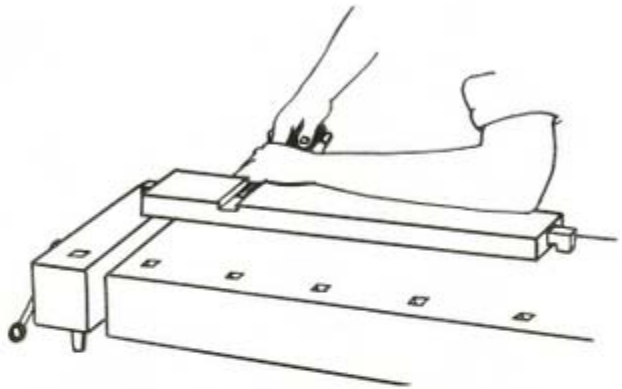


Use both pairs of dogs and work from the end of the bench to cut a dado or housing with a combination plane.

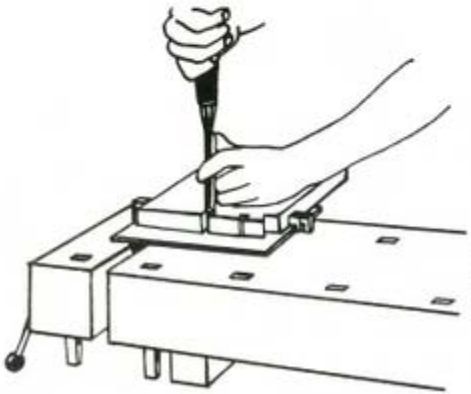
CHISELLING 1.
Paring chisels



Horizontal paring for such operations as cutting halvings is best done in the tail vice. Here you can work from different angles without constant repositioning of the workpiece.



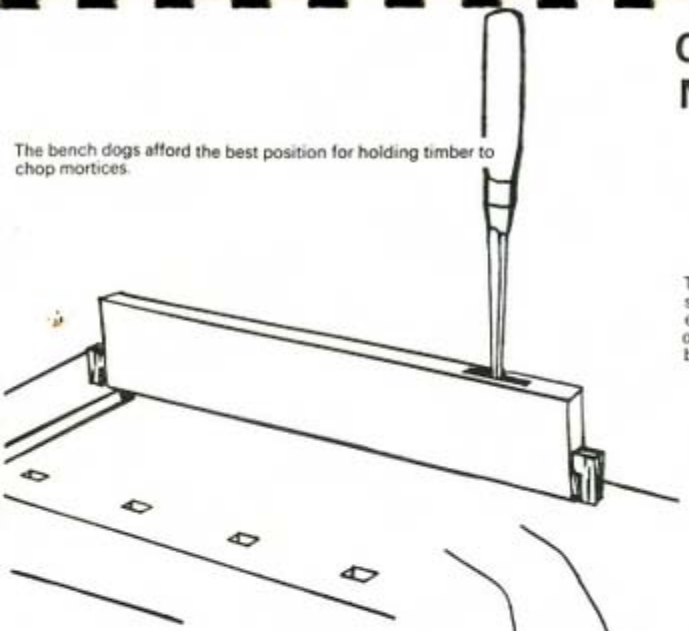
When horizontal paring on wider pieces it is best to hold them in the bench dogs.



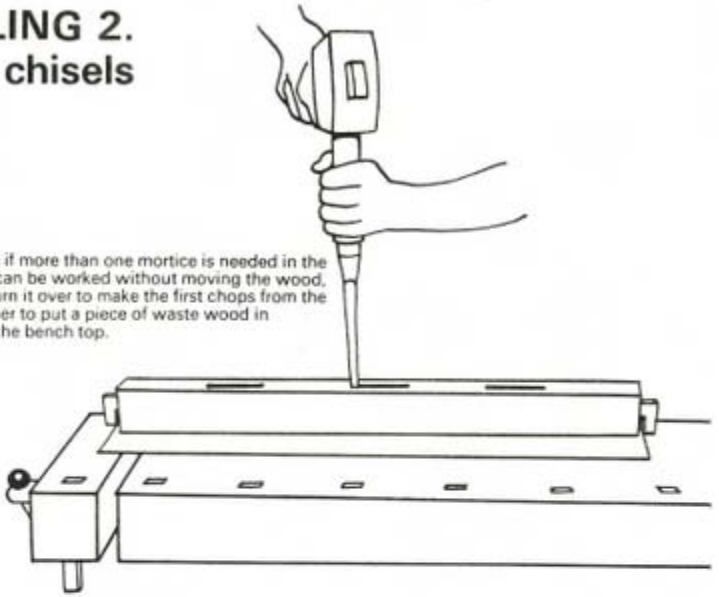
Vertical paring calls for a piece of scrap ply or hardboard to protect the bench top. This can be secured with the bench dogs and as it is thin material can be anchored down with the hooked edges of the dogs.

CHISELLING 2.
Mortice chisels

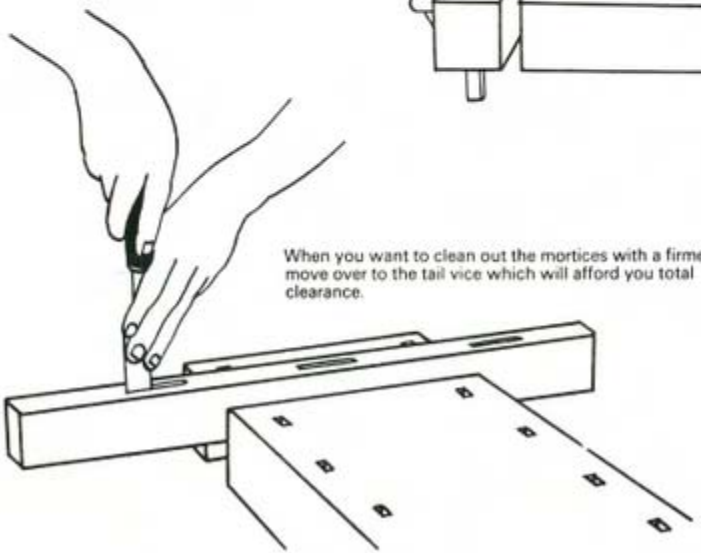
The bench dogs afford the best position for holding timber to chop mortices.



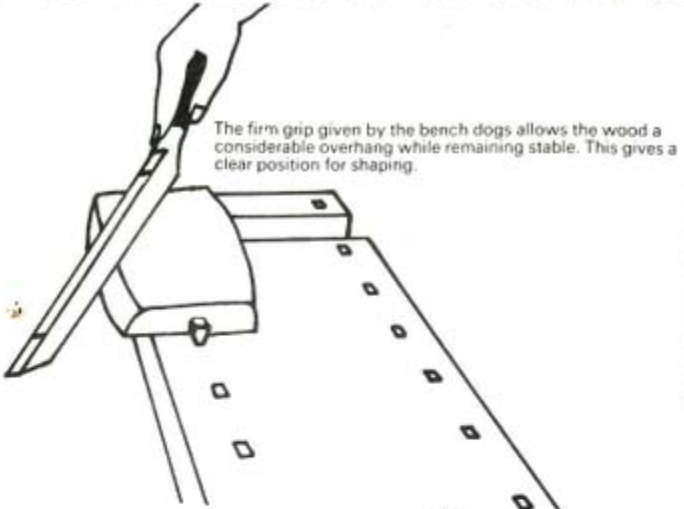
This equally applies if more than one mortice is needed in the same piece. These can be worked without moving the wood, except when you turn it over to make the first chops from the other side. Remember to put a piece of waste wood in beneath to protect the bench top.



When you want to clean out the mortices with a firmer chisel move over to the tail vice which will afford you total clearance.

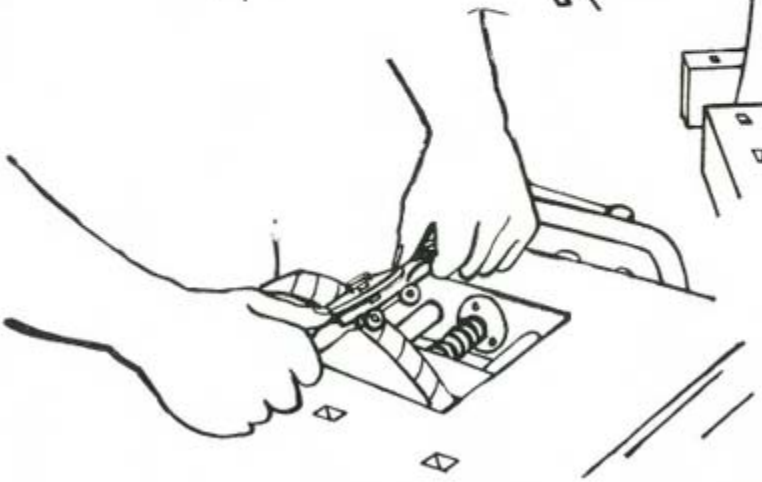


SHAPING AND CARVING

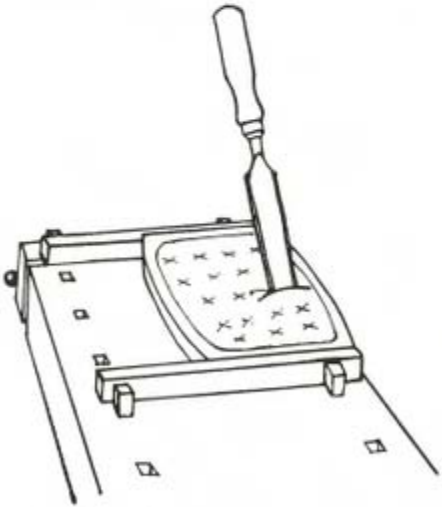


The firm grip given by the bench dogs allows the wood a considerable overhang while remaining stable. This gives a clear position for shaping.

The tail vice will hold quite large blocks for carving in the round, giving you good access all round without moving the work.

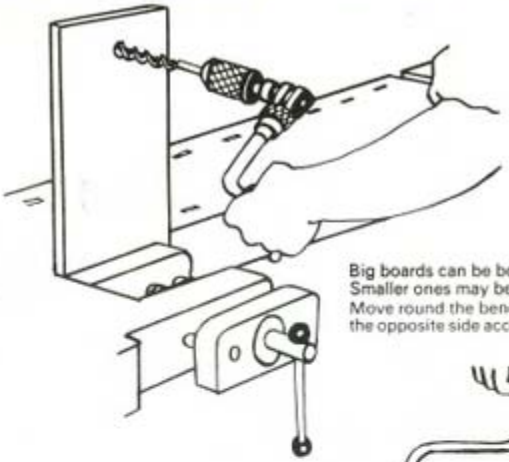


Spokeshaving, edge contouring and shaping many objects is best done in the shoulder vice.

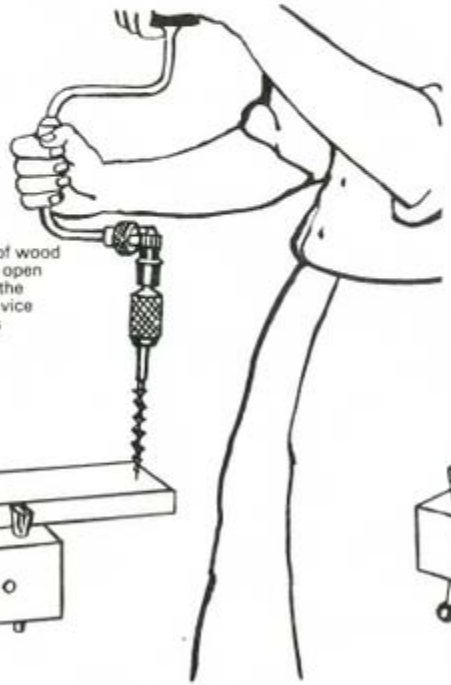


Pieces for gouging or hollowing out should be placed in the bench dogs, with a protective block between the dog and workpiece if necessary

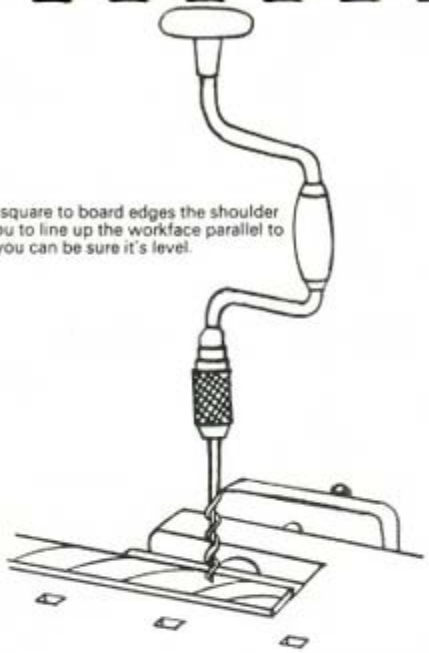
BORING



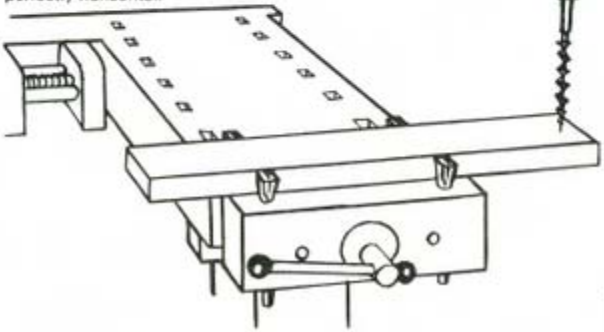
Big boards can be bored horizontally in the shoulder vice. Smaller ones may be better in the end of the tail vice. Move round the bench to finish the hole from the opposite side according to standard practice.

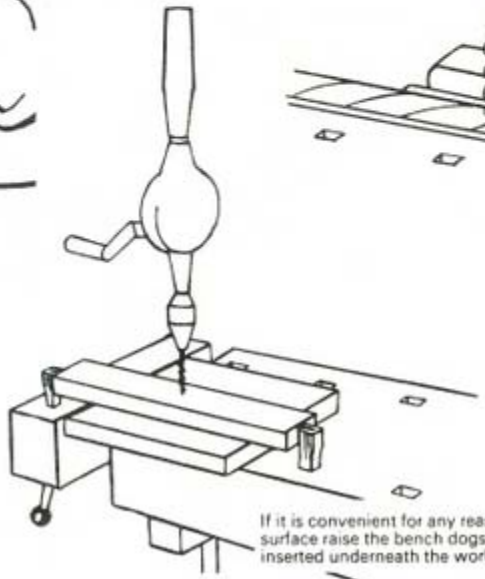


If you have to bore holes square to board edges the shoulder vice is a help. It allows you to line up the workface parallel to the bench top's edge so you can be sure it's level.



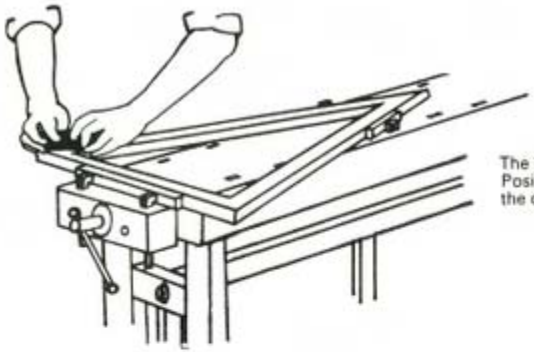
Holes which have to be made right through the face of wood should overhang the bench or be positioned over the open jaws of the tail vice. It is better to place the wood on the bench surface held by the dogs rather than in the tail vice itself. This assists accuracy by ensuring the wood lies perfectly horizontal.





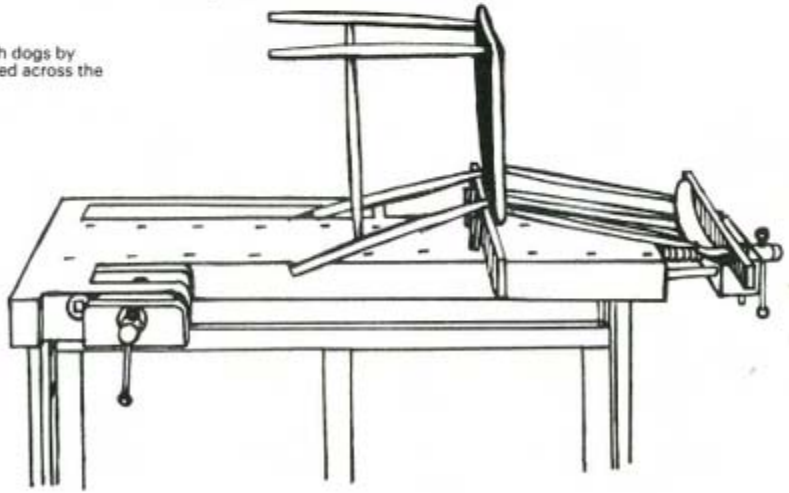
If it is convenient for any reason to bore over the bench surface raise the bench dogs so that waste wood can be inserted underneath the work.

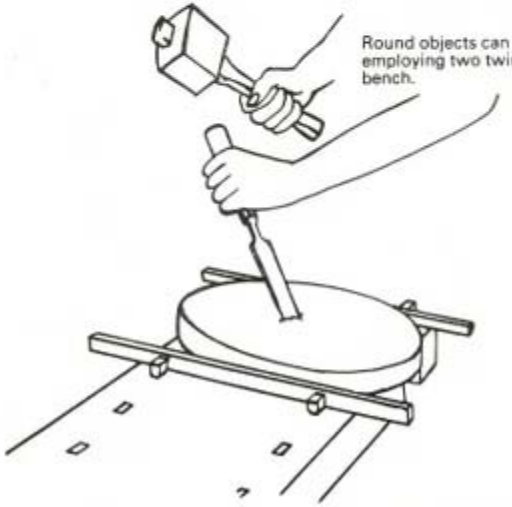
AWKWARD OBJECTS



The bench dogs will hold triangular or other odd shapes. Position small waste pieces of wood between the work and the dogs to prevent marking of the work when you tighten up.

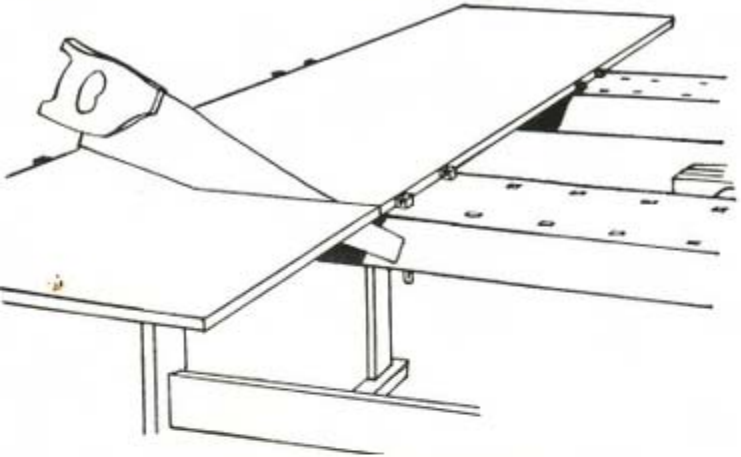
A difficult shape like a chair which does not have two suitable points of control at bench top level to clamp on can often be secured in the bench dogs with the aid of strategically placed pieces of waste wood.



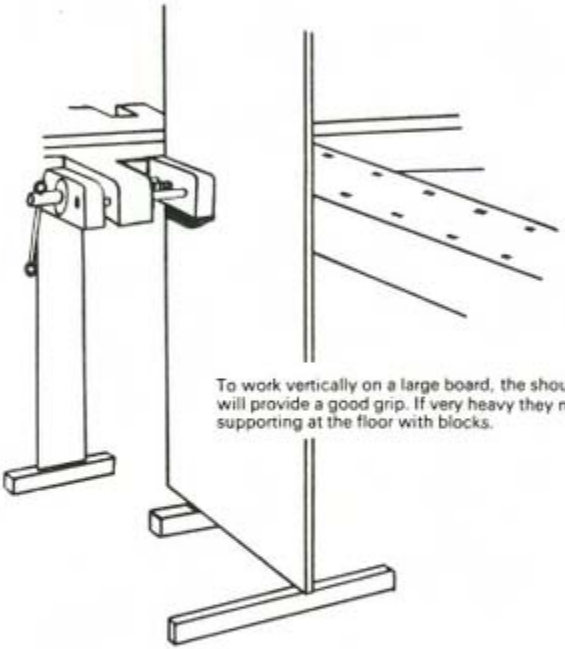


Round objects can also be held by the bench dogs by employing two twin strips of wood positioned across the bench.

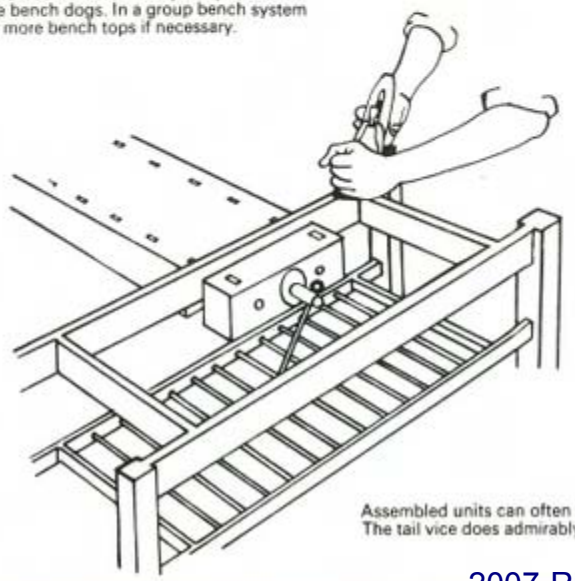
LARGE OBJECTS



Even the largest standard boards can be adequately secured for sawing up using the bench dogs. In a group bench system it can go across two or more bench tops if necessary.



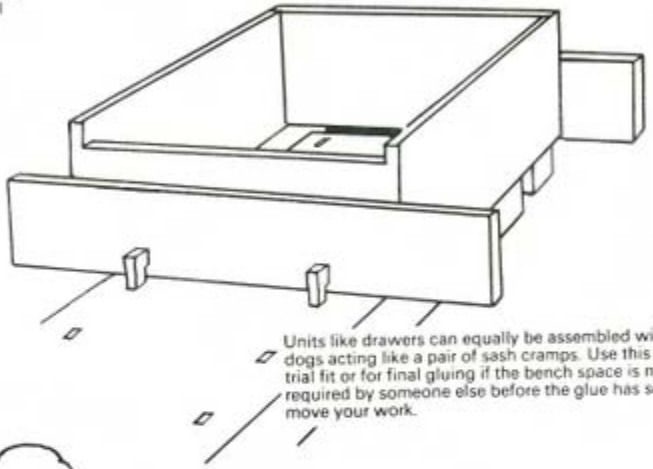
To work vertically on a large board, the shoulder vice will provide a good grip. If very heavy they may need supporting at the floor with blocks.



Assembled units can often be difficult to hold for trimming up. The tail vice does admirably in this instance.

SETTING UP AND ASSEMBLY

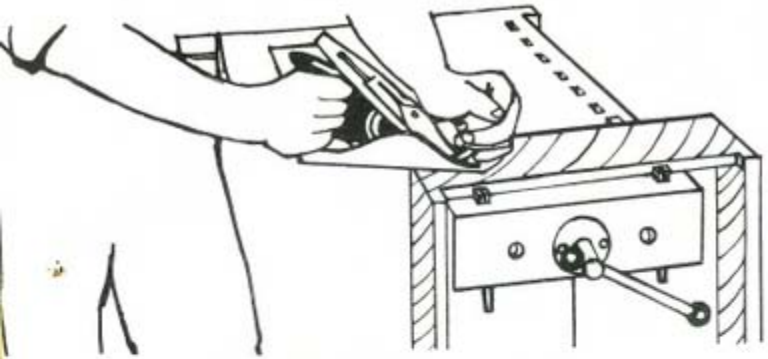
Putting joints together is eased if one member is held in the vice, usually the shoulder vice where the "third face" will assist accurate alignment.



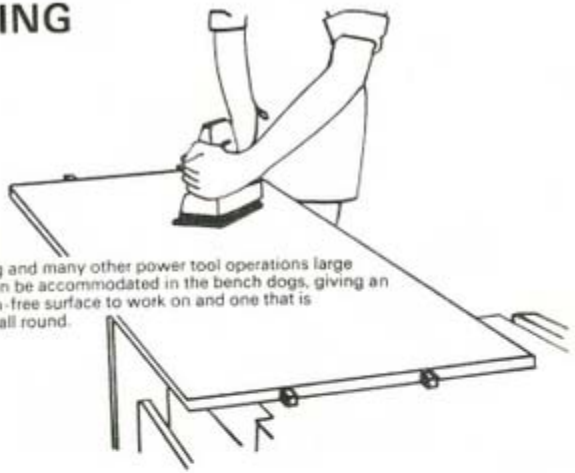
Units like drawers can equally be assembled with the bench dogs acting like a pair of sash cramps. Use this facility for a trial fit or for final gluing if the bench space is not going to be required by someone else before the glue has set and you can move your work.

The double row of bench dogs facilitates the assembly of any frame providing even pressure automatically.

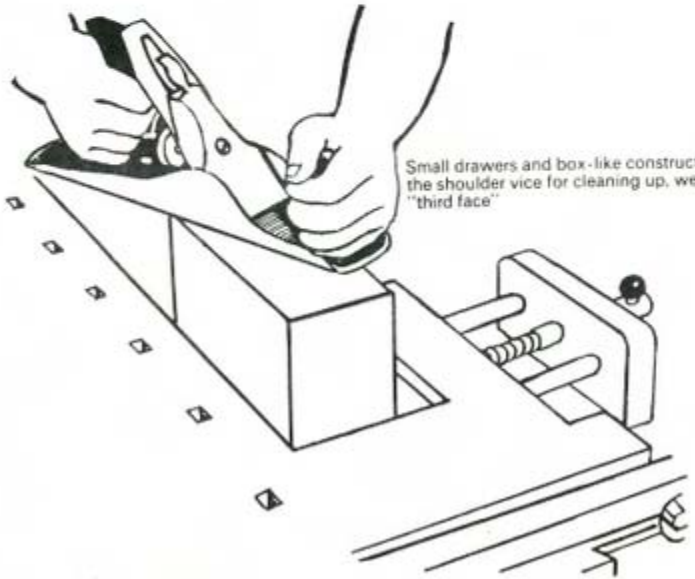
FINISHING



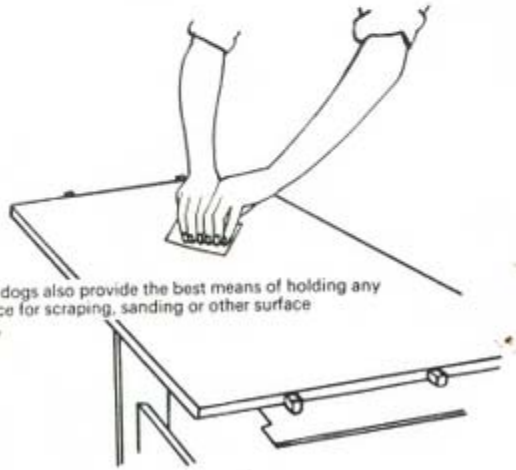
A frame construction like this can be supported over the end of the bench, held by the dogs, for cleaning up. This imposes less strain on the joints than other methods.



For sanding and many other power tool operations large surfaces can be accommodated in the bench dogs, giving an obstruction-free surface to work on and one that is accessible all round.



Small drawers and box-like constructions should be held in the shoulder vice for cleaning up, well up against the "third face"



The bench dogs also provide the best means of holding any large surface for scraping, sanding or other surface operations.